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BLACK & VEATCH
SPECIAL PROJECTS CORP.

101 North Wacker Drive, Suite 1100, Chicago, Illinois 60606, (312) 346-3775, Fax: (312) 346-4781

USEPA/ARCS V
American Chemical Services 80-5PJ7

BVSPC Project 71670
BVSPC File C.3
May 24, 1996

Ms. Sheri Bianchin
U.S. Environmental Protection Agency
77 West Jackson Boulevard (SRW-6J)
Chicago, Illinois 60604

Subject: Comments on Montgomery Watson's Response to USEPA Comments on the Upper Aquifer Technical Memorandum for American Chemical Services

Dear Ms. Bianchin:

Enclosed are review comments on Montgomery Watson's response to USEPA comments on the Upper Aquifer Technical Memorandum for American Chemical Services. The comments are generally organized to follow Montgomery Watson's response to USEPA comments and the revised Upper Aquifer Technical Memorandum.

We appreciate the opportunity to assist USEPA on this project. Please contact our office if you have any questions.

Sincerely,

BLACK & VEATCH SPECIAL PROJECTS CORP.

Steven R. Mrkvicka



Enclosure
cc: D. Gountanis, USEPA (MCC-10J)
M. Hendrixson, USEPA (MCC-10J)
C. Norman, USEPA (SMC-5J)
R. McAvoy, w/enclosure
R. Lantz, w/enclosure
M. Mastronardi, w/enclosure

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# Review Comments on
# Montgomery Watson's Response to USEPA Comments on the
# Upper Aquifer Technical Memorandum
# American Chemical Services, Inc.

## General Comments

**Comment No. 1,**

During review of the Revised UA Investigation Technical Memorandum (May 3, 1996), it was noted that a large number of the USEPA's comments were not adequately addressed (i.e., General Comments 1, 3, 6, 7, and Specific Comments 9, 10, 11, 13, 14, 15, 16, 19, 21, 22, 27, and 30). Therefore, it appears that the Montgomery Watson's Response to USEPA Comments on the UA Investigation Technical Memorandum is incomplete.

**Comment No. 2,**

During review of the May 1996 UA Investigation it was noted that the original objectives stated in the January 1996 UA Investigation SOW and SOPs had changed. This is not acceptable. A comparison of the objectives presented in the January 1996 document versus the objectives presented in the May 1996 document is provided in Table 1 (attached).

**Comment No. 3,**

Although the upper aquifer investigation was useful in providing an indication of the extent of groundwater contamination in the top 5 feet of the upper aquifer, it is not possible to make conclusions beyond this (i.e., vertical and horizontal extent of contamination). This is particularly important when considering the fact that the upper aquifer saturated thickness varies between 10 and 30 feet across the site.

**Comment No. 4,**

Hydropunch sampling is a screening tool and is not capable of determining to a high degree of accuracy the groundwater concentrations in a plume due to an extremely limited sample zone, purge volume, as well as groundwater contaminant transport heterogeneity. A review of the upper aquifer investigation results supports this comment. For example, the following list includes hydropunch sample pairs,

from Areas A, B and D, that are directly downgradient from one another, and yet increased in total VOC concentrations:

| Area | Upgradient | | Downgradient | |
|---|---|---|---|---|
| Area A | GP56 | 6,700 ug/L | GP58 | 50,600 ug/L |
| | GP53 | 813 ug/L | GP60 | 3,560 ug/L |
| Area B | GP55 | 420 ug/L | GP67 | 715 ug/L |
| | GP81 | 18,803 ug/L | GP82 | 29,460 ug/L |
| | GP120 | 1,095 ug/L | GP128 | 5,376 ug/L |
| | GP127 | 19 ug/L | GP134 | 1,630 ug/L |
| Area D | GP106 | 156 ug/L | GP107 | 6,213 ug/L |
| | GP113 | non-detect | GP114 | 53 ug/L |
| | GP138 | non-detect | GP139 | 50 ug/L |

This same pattern is repeated when one examines the benzene concentrations. The data indicates that sample heterogeneity occurred during hydropunch sampling both frequently and across the entire site.

## Specific Comments

### Comment 1, Page 4, Third Bullet

The text states "Because clay was found to be located at less than a ten-foot depth...." Clay was not found in any of the work during the UA investigation. Revise this sentence to read "Because a water sample could not be drawn through the geoprobe screen at the 10 foot interval,..."

**Comment 2, Figure 2**

The figure does not present the location of GP54. Include this sample location on the figure.

**Comment 3, Page 7, Paragraph 1**

The text states, "The results of the deep groundwater samples in the upper aquifer indicate that VOC sampling five feet below the water table provide results that are representative of the entire saturated thickness of the upper aquifer." The data does not support this statement. The results at hydropunch locations GP57 and GP68 show an order of magnitude increase when comparing the shallow and the deep sample results.

Discuss how the results of GP57 and GP68 affect the objective #2 for Area A defined in the January 22, 1996, SOW, page 2, "Determine whether VOC contamination extends below the upper five feet in the upper aquifer."

**Comment 4, Page 3, Item 2**

The text states that the second objective of the Area A investigation was to "Determine whether VOC contamination extends below the upper five feet in the upper aquifer at selected locations along the plume front." The words "...at selected locations along the plume front" were not present in the January 22, 1996 UA Investigation SOW and SOPs and were added in an unauthorized manner to this technical memorandum.

**Comment 5, Page 7, Paragraph 2**

The text states that "the highest VOC concentrations were found in groundwater samples collected just north of the UST located at the City of Griffith Landfill...." The text then goes on to say, "Benzene was detected as high as 6,950 $\mu$g/L near the former UST...", implying that this contamination comes from the UST. However, according to Figure 3, of the three groundwater samples collected near the former UST (GP87, GP89, and GP123), benzene concentrations were found to be highest in the location upgradient of the UST (GP123) and lowest in the location downgradient of the UST (GP87). Clearly, the UST must be ruled out as a source to this plume.

**Comment 6, Page 8, Area B, Conclusions, Paragraph 1**

The text states, "There are several potential sources of elevated BETX concentrations upgradient of monitoring well MW6, near the intersection of Colfax and Reder Roads. Possible sources include the UST area at the City of Griffith garage..." Based on field observations and discussions with a City of Griffith representative during the time of hydropunch sampling, it was determined that the UST at the City of Griffith garage was located near GP87, approximately 300 feet west-southwest of MW-6. In light of the groundwater flow direction, which on page 2 of this technical memorandum is to the south, the UST location is upgradient of MW-6. This statement is without technical merit.

**Comment 7, Page 8, Area B, Conclusions, Paragraph 2**

The text states, "The approximate extent of VOC contamination in the upper aquifer south of Reder Road was defined during the investigation." This is not true. Hydropunch samples analyzed by a DQO Level II analytical method are considered qualitative data only. Furthermore, groundwater samples were only collected in the top 5 feet of the aquifer. Deeper samples may be required to define the extent of contamination, particularly in light of the contaminant stratification noted in Area A.

**Comment 8, Page 8, Area C, Conclusions**

The text states "... the "Final Remediation Level" for acetone in the ROD (2,300 $\mu$g/L). The ROD provides a range of concern for acetone from 192 to 2,300 $\mu$g/L. Any concentrations of acetone greater than 192 $\mu$g/L is within this range of concern.

**Comment 9, Page 8, Area D, Results**

Since GP-90 is part of and a driving force behind the Area B plume, include this sample in the Area B sections of the technical memorandum.

**Comment 10, Page 11, Residential Wells**

Why was the residential sample location at 950 Arbogast in the March 1996 technical memo changed to 938 Arbogast in the May 1996 technical memo?

**Comment 11, Page 11, Residential Wells**

Why was the sentence, "Well logs for the residential wells will be made available prior to sampling," on page 11 of the March 1996 technical memo deleted in the May 1996 technical memo?

**Comment 11, Appendix C,**

The protocols presented must conform to an USEPA/IDEM approved quality assurance project plan and field sampling plan.

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